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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/075,726	02/14/2002	Torsten Zech	C 2397 COGG	1641
23657	7590	07/18/2006	EXAMINER	
COGNIS CORPORATION PATENT DEPARTMENT 300 BROOKSIDE AVENUE AMBLER, PA 19002			ALEXANDER, LYLE	
			ART UNIT	PAPER NUMBER
			1743	

DATE MAILED: 07/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	<b>Application No.</b> 10/075,726	<b>Applicant(s)</b> ZECH ET AL.	
	<b>Examiner</b> Lyle A. Alexander	<b>Art Unit</b> 1743	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 May 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-17 and 19-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 and 19-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

***Claim Rejections - 35 USC § 102***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1,6-10,13-17 and 19 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Lei et al. (USP 6,637,463).

Lei et al. teach a multichannel microfluidic device that controls the fluid flow through a plurality of channels by structures that are abrupt changes in the geometry (see column 2-3 lines 65-7 respectively). Column 7 lines 30-38 teach wells in each of the channels for chemical or biochemical reactions. These wells contain the necessary reagents to accomplish the desired reactions. Figure 6 is exemplary of the different geometric forms of the channels and show angles of the channels where mixing occurs that are within the claimed range. Column 9 lines 51-59 teach dimensions of the device that are indistinguishable from that presently claimed. The claimed "channels" have been read on the taught channels. The claimed "reaction space" has been read on the taught wells. The claimed "reaction educts" have been read on the taught chemical/biological reagents.

Claims 1-10,13-17, 19-20 and 23-24 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Davidson et al. (USP 6,153,076).

Davidson et al. teach a plurality of sinusoidal microchannels that are in virtually any configuration (see abstract). Column 3 lines 20-23 teach figure 1 shows a straight channel and a straight channel which has been read on the claimed different geometric forms. Columns 2-3 lines 66-20 respectively teach the channels are etched into

substrates that are glass or silicon. The Office has read taught construction from silicon on the claimed reaction space being coated with silicon (e.g. if the reaction space is silicon it will also be coated with silicon). Column 3 line 33 teaches the microchannels are etched. Column 3 lines 37-47 teach dimensions of the channels that are indistinguishable from the instant claims. The sinusoidal channels have angles that are within the claimed range.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 11-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 11 teaches "comprising mixing, reaction, heating or cooling zones" but fails to teach any means to accomplish these functions.

***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lei et al. in view of Srinivasan et al.

See the appropriate paragraph of the 9/14/04 Office action for the teachings of Srinivasan et al. See Lei et al. supra.

Lei et al. are silent to the claimed heating and cooling zones.

Srinivasan et al. teach in paragraphs [053-073] heating and cooling regions for controlling specific reaction parameters in certain regions of the microfluidic device. Heating and cooling regions are advantageous because they facilitate optimal temperatures to optimize the reactions.

It would have been within the skill of the art to modify Lei et al. in view of Srinivasan et al. and incorporate heating and cooling regions to gain the above advantages.

Claims 11-12 and 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Davidson et al. in view of Srinivasan et al.

Davidson et al. are silent to the claimed heating and cooling zones.

Srinivasan et al. teach in paragraphs [053-073] heating and cooling regions for controlling specific reaction parameters in certain regions of the microfluidic device. Heating and cooling regions are advantageous because they facilitate optimal temperatures to optimize the reactions.

It would have been within the skill of the art to modify Davidson et al. in view of Srinivasan et al. and incorporate heating and cooling regions to gain the above advantages.

### ***Response to Arguments***

Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lyle A. Alexander whose telephone number is 571-272-1254. The examiner can normally be reached on Monday, Wednesday and Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on 571-272-1267. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1743

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Lyle A Alexander  
Primary Examiner  
Art Unit 1743



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